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Additional New Radiocarbon Dates from East Texas Caddo Sites

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Additional New Radiocarbon Dates from East Texas Caddo Sites

Timothy K. Perttula and Robert Z. Selden, Jr.

INTRODUCTION

As a follow-up to the radiocarbon analyses reported by Perttula and Selden (2013), in this article, we report on five new radiocarbon dates obtained from Caddo sites in East Texas. The radiocarbon samples are charred organic remains scraped off of one surface of whole vessels or sherds. These samples are from the Ware Acres site (41GG31; Jones 1968; Perttula 2013a), the H. C. Slider site in Cherokee County (Perttula 2013b), an unknown site in the upper Neches River basin in Smith County (9-SC), and an unknown Titus phase site (11-BCJ) in the Big Cypress Creek basin. All of the dates are calibrated using OxCal v4.1.7 (Bronk Ramsey 2012), with atmospheric data from Reimer et al. (2009).

THE DATES

Two radiocarbon samples have been submitted on organic residue from Ripley Engraved sherds recovered by Jones (1968) in a large midden deposit in Area C at the Ware Acres site in the Sabine River basin. The first Ripley Engraved sherd has a 2-sigma (95.4%) calibrated age range of A.D. 1436-1618, with a median calibrated age of A.D. 1465 (Figure 1). The sherd is a rim from a Ripley Engraved, *var. Galt* carinated bowl with a scroll and circle motif (Figure 2c).

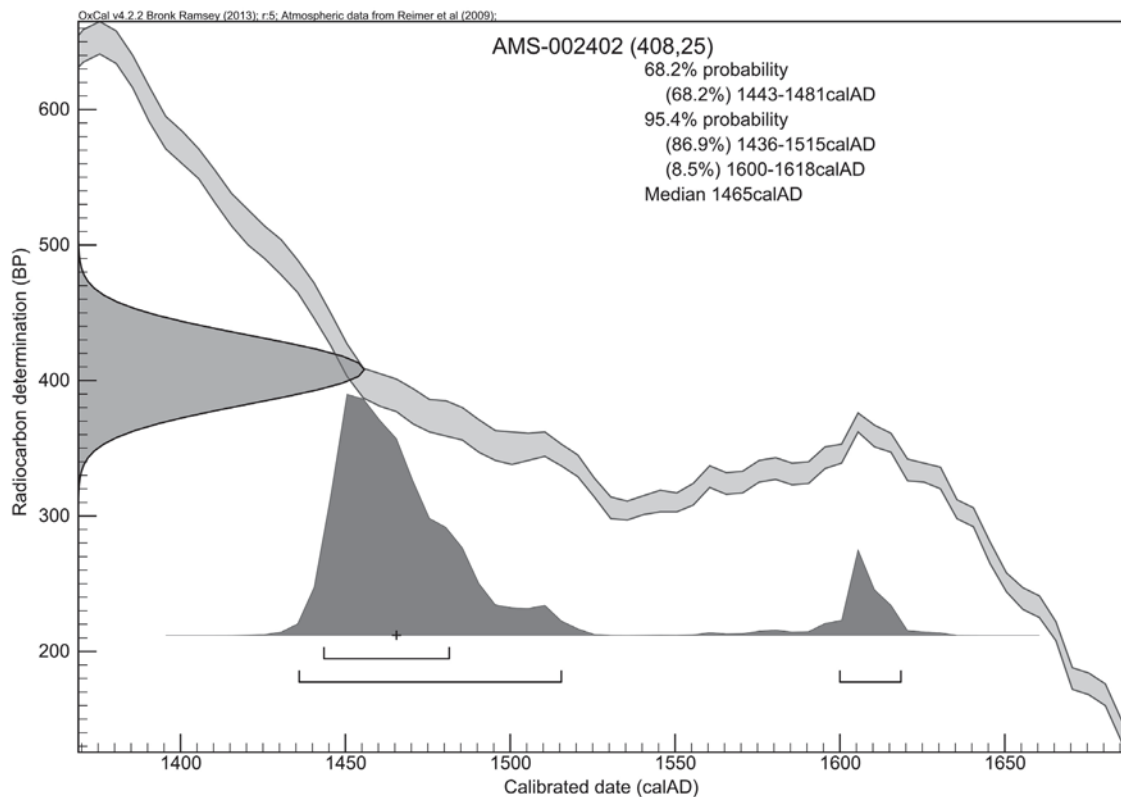


Figure 1. Calibrated age ranges of Ware Acres (41GG31) Ripley Engraved, *var. Galt* rim sherd (AMS-002402).

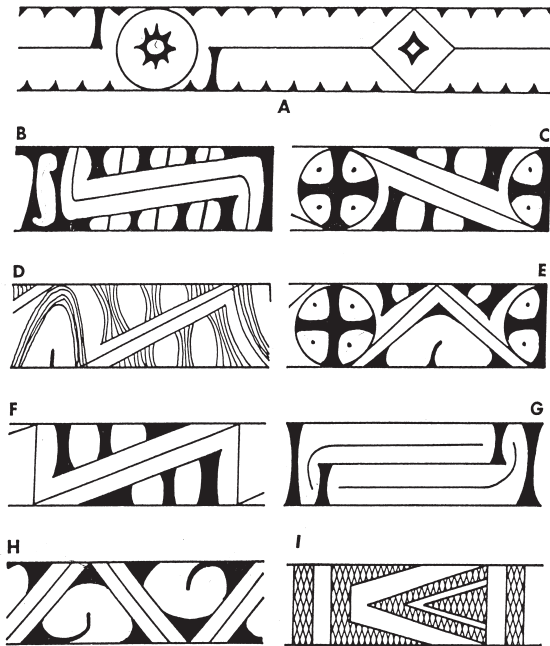
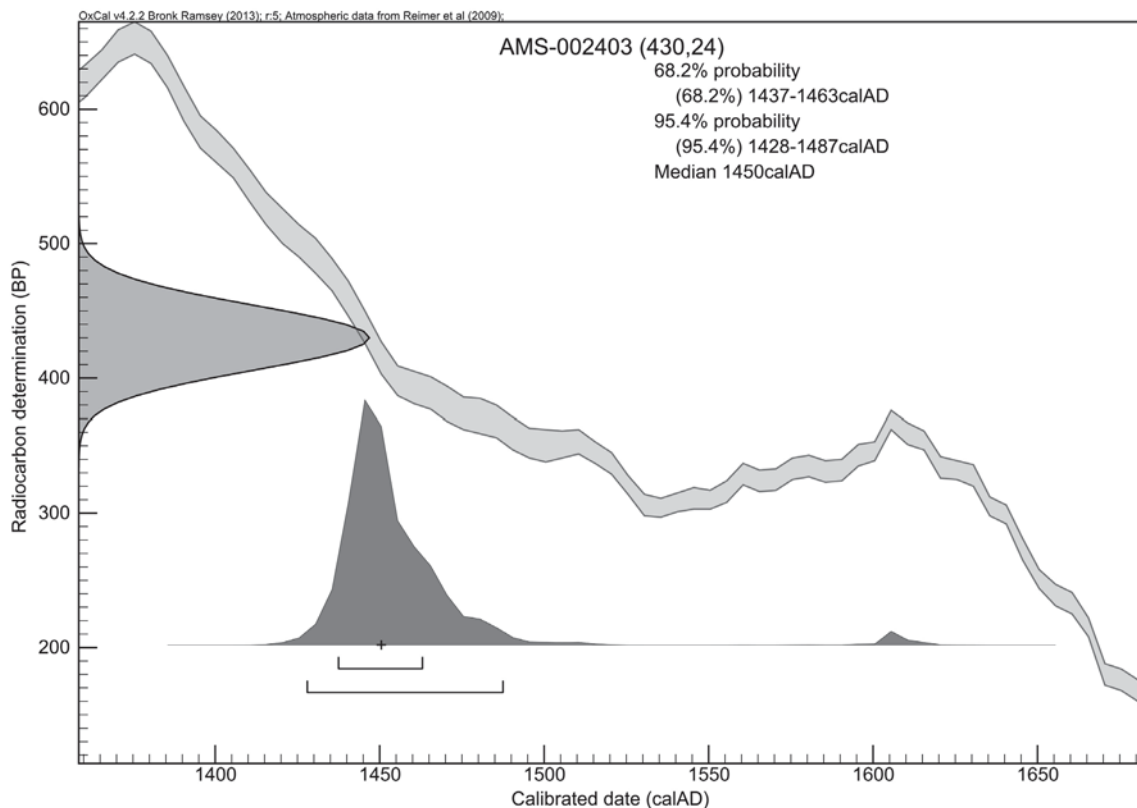


Figure 2. Ripley Engraved carinated bowl motifs.

The second radiocarbon sample from the Ware Acres site is on a carinated bowl rim with a Ripley Engraved, *var. Carpenter* or continuous scroll motif (see Figure 2f). The organic residue on this sherd has a 2-sigma calibrated age range of A.D. 1428-1487, and a median calibrated age range of A.D. 1450 (Figure 3). The median calibrated ages of both dated Ripley Engraved rim sherds range from A.D. 1450-1465, suggesting these sherds are from an early Titus phase occupation on this part of the site (Perttula 2013a). Much of the deposits in Area C at the site date after ca. A.D. 1600 (Perttula 2013a), however, based on the preponderance of sherds with pendant triangle motifs (Ripley Engraved, *var. McKinney*, see Figure 2a) in the decorated ceramic sherd assemblage.

The H. C. Slider site is a Late Caddo period, Frankston phase (ca. A.D. 1400-1650) settlement and cemetery in the Neches River valley in western Cherokee County (Perttula 2013b) that was investigated by Buddy Jones in the 1960s. There were midden deposits on three knolls, and Knoll A had four burials. The organic residue sample came

Figure 3. Calibrated age ranges of Ware Acres (41GG31) Ripley Engraved, *var. Carpenter* rim sherd (AMS-002403).

from a Bullard Brushed vessel (No. 7) in Burial 2. The burial had several funerary offerings, including two Killough Pinched jars, one with a pedestal base, a Poynor Engraved bottle, a Poynor Engraved carinated bowl, a plain carinated bowl, and a Bullard Brushed jar. The calibrated 2-sigma age range of the residue on the jar is A.D. 1453-1635, with a median calibrated age of A.D. 1547 (Figure 4).

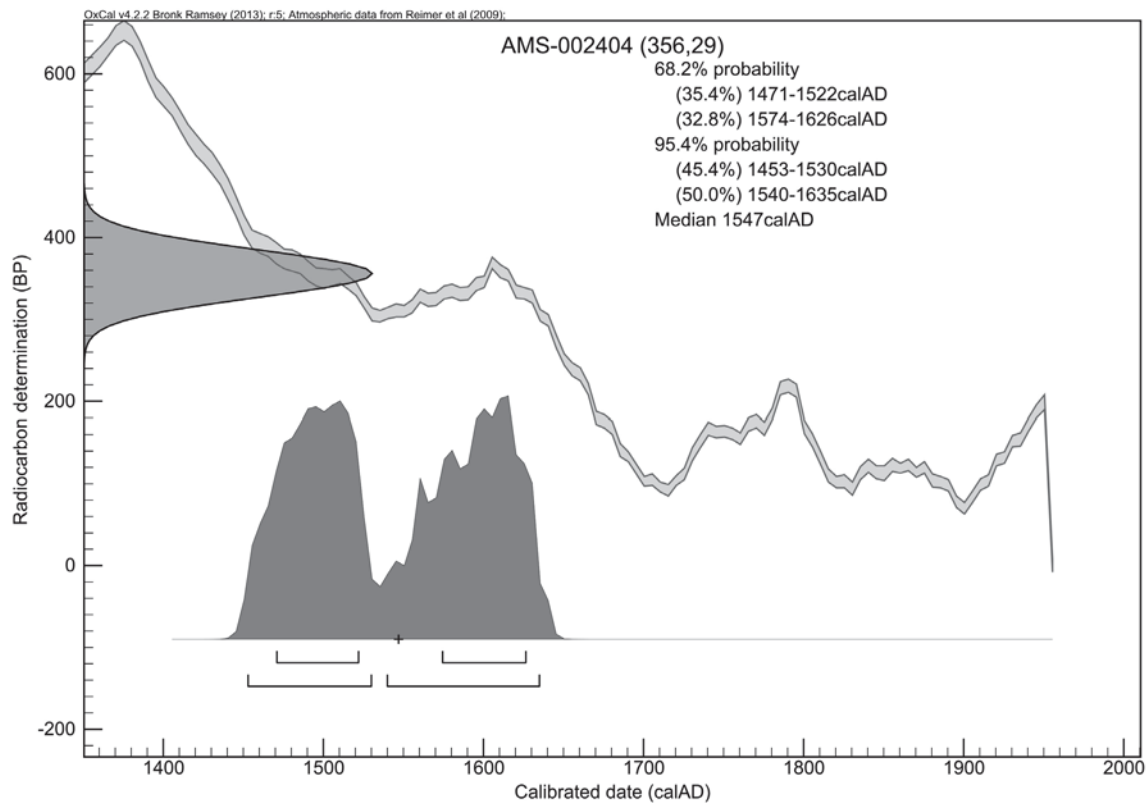


Figure 4. Calibrated age ranges of H. C. Slider site Bullard Brushed jar (AMS-002404).

The Bullard Brushed jar is a medium-sized vessel (16.7 cm in height) tempered with bone, grog, and hematite. There is vertical brushing on the rim and the body, extending to within 5 cm of the vessel base (Figure 5).

The SC designation on vessels in the Buddy Jones Collection at the Gregg County Historical Museum is for Smith County. Although the site provenience of Vessel 9-SC is not known with certainty, Jones excavations in Smith County were confined to several sites in the upper Neches River basin, in the area of present-day Lake Palestine (Perttula et al. 2013). The organic residue scraped from Vessel 9-SC has a 2-sigma calibrated age range of A.D. 1276-1394, with a median calibrated age of A.D. 1333 (Figure 6).

The dated vessel is brushed on the rim and body, with four vertical sets of applied nodes on the body itself (Figure 7). The lip is notched, which is an unusual and rare East Texas Caddo rim treatment.

Vessel 11-BCJ is from an unknown Titus phase site in the Big Cypress Creek basin. Buddy Jones excavated a number of Titus phase cemeteries on both Big Cypress Creek and Little Cypress Creek in the 1950s and 1960s, but due to lack of records, the site provenience of this vessel is not known at present. The 2-sigma calibrated age range of the organic residue on the Cass Applied jar (Figure 8) is A.D. 1455-1635, with a median calibrated age of A.D. 1553 (Figure 9). This date indicates that the vessel is likely from a late (post-A.D. 1550) Titus phase burial in the region.



Figure 5. Bullard Brushed jar from the H. C. Slider site, Burial 2, Vessel 7.

Cass Appliqued jars are not common in Titus phase sites, based on a compilation of more than 2030 vessels from burials in 17 different cemeteries (Perttula and Sherman 2009:Table 17-4). It was best represented at the Tuck Carpenter (41CP5) and H. S. Taylor (41HS3) sites on tributaries in the Big Cypress Creek basin. Cass Appliqued jars are also present in late 17th century Nasoni Caddo cemeteries on Black Bayou, a tributary to the Red River, in East Texas (Perttula et al. 2010).

SUMMARY

The five new radiocarbon dates from these Caddo sites in East Texas add to the ever increasing corpus of radiocarbon dates obtained from Caddo sites in the region (Perttula and Selden 2013; Selden and Perttula 2013). Three dates from sherds and a Cass Appliqued vessel attest to a Titus phase age for these ceramics and the sites they come from: the median calibrated ages of these samples are A.D. 1450, A.D. 1465, and A.D. 1553. The other two new radiocarbon dates are from vessels from Caddo sites in the upper Neches

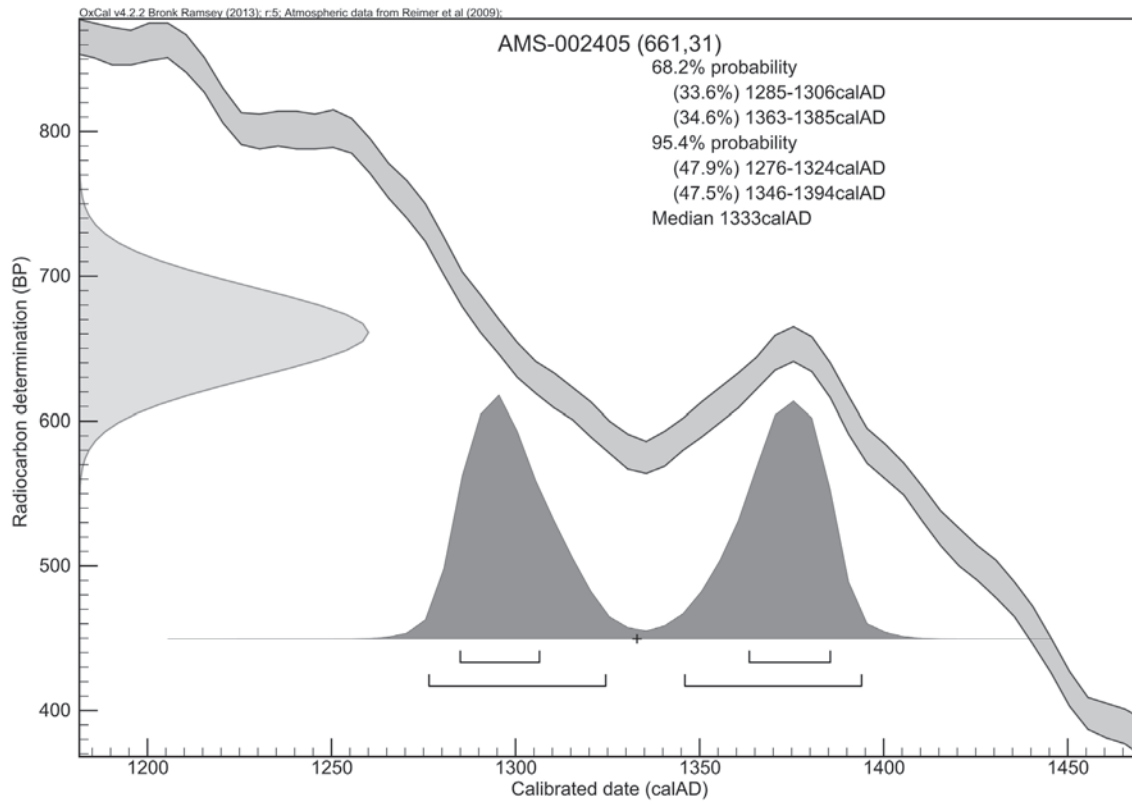


Figure 6. Calibrated age ranges of 9-SC Brushed-Applied jar, Smith County (AMS-002405).



Figure 7. Brushed-Applied jar from unknown upper Neches River basin site in Smith County, Texas.



Figure 8. Cass Applied jar (11-BCJ).

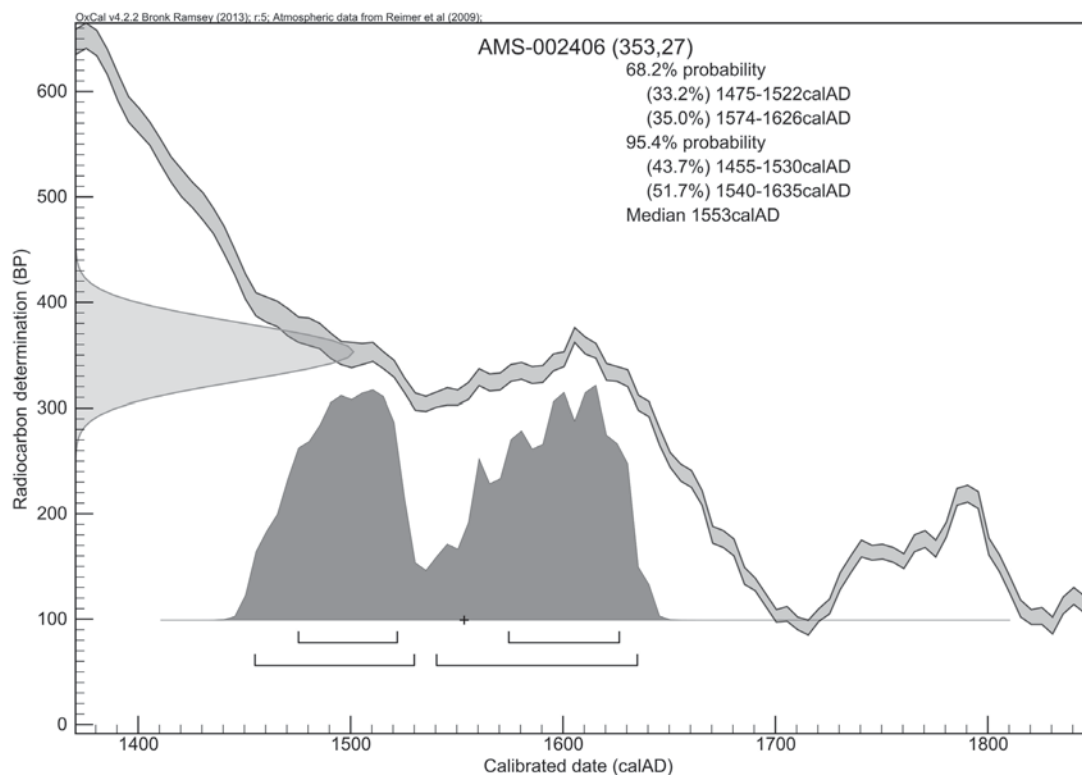


Figure 9. Calibrated age ranges of 11-BCJ Cass Applied jar from an unknown Titus phase site in the Big Cypress Creek basin.

River basin, one date from a clear Frankston phase context at the H. C. Slider site. The median calibrated age of organic residues on a Bullard Brushed jar from this site is A.D. 1547. The last dated vessel is a brushed-applied jar from an uncertain context. The 2-sigma calibrated age range of the organic residue on this vessel is A.D. 1276-1394, indicating that this vessel was in use by Caddo peoples in the Middle Caddo period.

ACKNOWLEDGMENTS

We appreciate the permission of the Gregg County Historical Museum to document the vessels and/or sherds from these East Texas sites.

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A Preliminary Temporal Analysis of the East Texas Archaic

Robert Z. Selden, Jr.

INTRODUCTION

This article presents preliminary findings of a temporal analysis of the East Texas Archaic based upon the examination of radiocarbon ^{14}C dates from sites that have deposits that date to the period. All assays employed in this effort were collected from research and cultural resource management reports and publications, synthesized, then recalibrated in version 4.1.7 of OxCal (Bronk Ramsey 2013) using IntCal09 (Reimer et al. 2009).

The date combination process is used herein to refine site-specific summed probability distributions, illustrating—for the first time—the temporal position of each dated archaeological site with an assay that falls within the Archaic. Seventy-three radiocarbon dates from 34 sites serve as the foundation for this analysis of the East Texas Archaic period (ca. 8000-500 B.C.) (Table 1). All dates used in this analysis come directly from the East Texas Radiocarbon Database (ETRD) (Pertulla and Selden 2011). Within the sample, there are 19 sites with a single radiocarbon sample that dates to the Archaic, eight sites with two dated samples, one site with three dated samples, three sites with four dated samples, one site with five dated samples, and one site with 14 dated samples (Table 1). Of the 73 ^{14}C dates from the ETRD used in this analysis, one dates to the Early Archaic period (ca. 8000-5000 B.C.), eight date to the Middle Archaic period (ca. 5000-3000 B.C.), and the remaining 64 date to the Late Archaic period (ca. 3000-500 B.C.) (temporal divisions follow Pertulla and Young [2012]).

METHODS

The date combination (R_Combine) process assumes that if all assays collected at a particular site draw carbon from the same reservoir, then they should have the same underlying ^{14}C value and can be combined prior to calibration (Bronk Ramsey 2008). The measurements have Gaussian uncertainty distributions, and χ^2 was used to test the assumption that all ratios are the same to reveal whether compelling evidence exists—at the 95% confidence level—that dates cannot be related to the same event (Bronk Ramsey 2008). Each site-specific figure provides the summed probability distributions (SPDs), calibrated age range for combined assays, and all dates utilized to determine these results.

Although ^{14}C determinations are most often represented in the form $A \pm E$ where A is the radiocarbon estimate (B.P.) and E represents the standard deviation, the method of date combination can be used to create a new ^{14}C determination from multiple assays, often with the ancillary benefit of a decrease in the standard deviation (Ward and Wilson 1978). To test whether a series of ^{14}C determinations are consistent, the pooled mean is calculated by way of A_p , where:

$$A_p = \left(\sum_1^n A_i / E_i^2 \right) / \left(\sum_1^n 1 / E_i^2 \right) \quad (1)$$

Table 1. Catalog of ^{14}C dates for the East Texas Archaic period.

<i>Trinomial</i>	<i>Assay No.</i>	<i>Raw Age</i>	$\delta^{13}\text{C}$ (‰)	\pm	<i>Conv ^{14}C Age</i>	\pm	<i>1σ Age Range*</i>	<i>2σ Age Range*</i>	<i>Median</i>
41AN38	Beta-236791	--	--	--	2800	40	1004-907 BC (0.68)	1051-839 BC (0.95)	954 BC
41AN115	Beta-166266	3840	50	-27.1	3810	50	2340-2195 BC (0.58), 2175-2145 BC (0.10)	2461-2134 BC (0.94), 2076-2064 BC (0.01)	2258 BC
41BW692	UGA-13422	3450	40	-24.5	3450	40	1874-1843 BC (0.17), 1816-1799 BC (0.08), 1779-1731 BC (0.29), 1719-1692 BC (0.14)	1886-1666 BC (0.95)	1768 BC
41BW692	UGA-13423	2760	40	-25.1	2760	40	970-962 BC (0.05), 1002-826 BC (0.95)	1002-826 BC (0.95)	904 BC
41BW692	UGA-13421	2690	40	-24.6	2630	40	831-787 BC (0.68)	896-765 BC (0.95), 678-675 BC (0.01)	806 BC
41CP220	Beta-204253	4450	40	-24.9	4450	40	3324-3234 BC (0.31), 3223-3220 BC (0.01), 3173-3161 BC (0.03), 3118-3078 BC (0.14), 3072-3024 BC (0.19)	3339-3206 BC (0.39), 3195-3008 BC (0.51), 2986-2932 BC (0.06)	3153 BC
41CS151	Beta-81674	5300	60	-25.4	5300	60	4231-4193 BC (0.15), 4177-4046 BC (0.53)	4317-4289 BC (0.03), 4262-3985 BC (0.93)	4135 BC
41CS151	Beta-76608	2400	60	-25.0	2400	60	729-693 BC (0.11), 659-653 BC (0.02), 543-398 BC (0.56)	756-684 BC (0.17), 670-390 BC (0.78)	513 BC
41DT59	Beta-81670	2660	50	-26.2	2640	50	889-881 BC (0.04), 843-781 BC (0.65)	917-756 BC (0.93), 685-669 BC (0.02), 607-601 BC (0.00)	815 BC
41FN66	Beta-205705	4110	80	-16.5	4250	90	3009-2983 BC (0.05), 2935-2836 BC (0.28), 2816-2671 BC (0.35)	3097-2574 BC (0.95)	2840 BC
41FN130	Beta-304937	3530	40	-6.5	3830	40	2391-2385 BC (0.02), 2346-2202 BC (0.66)	2460-2196 BC (0.91), 2170-2147 BC (0.04)	2286 BC
41FN130	Beta-304936	3450	40	-5.7	3770	40	2282-2249 BC (0.16), 2232-2137 BC (0.52)	2335-2324 BC (0.01), 2307-2113 BC (0.82), 2101-2037 BC (0.13)	2190 BC
41HE139	UGA-12890	4050	40	-23.85	4070	40	2836-2816 BC (0.08), 2668-2566 BC (0.49), 2523-2497 BC (0.11)	2859-2810 BC (0.14), 2752-2722 BC (0.05), 2701-2486 BC (0.77)	2616 BC
41HE139	UGA-12889	2590	40	-25.9	2580	40	809-756 BC (0.58), 685-669 BC (0.10)	821-742 BC (0.64), 690-663 BC (0.12), 647-549 BC (0.20)	773 BC
41HE245	SMU-660	2853	57	--	2853	70	1122-923 BC (0.68)	1258-1233 BC (0.02), 1217-843 BC (0.93)	1033 BC
41HE245	SMU-684	2821	59	--	2821	71	1112-1101 BC (0.03), 1086-1064 BC (0.05), 1058-898 BC (0.60)	1208-1140 BC (0.06), 1135-823 BC (0.89)	990 BC
41HE245	SMU-657	2669	50	--	2669	64	896-797 BC (0.68)	999-759 BC (0.94), 683-670 BC (0.01)	842 BC
41HE245	SMU-656	2635	49	--	2635	63	896-868 BC (0.11), 859-769 BC (0.58)	969-963 BC (0.00), 931-736 (0.82), 690-662 BC (0.04)	810 BC
41HP106	Beta-83089	2830	70	-27.2	2800	70	1041-892 BC (0.59), 878-846 BC (0.10)	1189-1181 BC (0.01), 1156-1145 BC (0.01), 1130-810 BC (0.94)	964 BC

Table 1. Catalog of ^{14}C dates for the East Texas Archaic period, cont.

<i>Trinomial</i>	<i>Assay No.</i>	<i>Raw Age</i>	\pm	$\delta^{13}\text{C}$ (‰)	<i>Conv ^{14}C Age</i>	\pm	<i>1σ Age Range*</i>	<i>2σ Age Range*</i>	<i>Median</i>
41HP118	SMU-1970	--	--	-21.5	2980	30	1266-1190 BC (0.50), 1179-1158 BC (0.10), 1145-1131 BC (0.08)	1371-1346 BC (0.02), 1316-1117 BC (0.93)	1218 BC
41HP118	SMU-1883	--	--	-25.0	2860	70	1127-926 BC (0.68)	1260-892 BC (0.93), 878-846 BC (0.03)	1043 BC
41HP159	GX-15881	--	--	-25.5	5540	70	4452-4339 BC (0.68)	4527-4259 BC (0.95)	4394 BC
41HP159	GX-15880	--	--	-26.0	4990	70	3933-3875 BC (0.20), 3807-3696 BC (0.48)	3946-3656 BC (0.95)	3783 BC
41HP159	SMU-2222	--	--	-25.8	4800	90	3692-3686 BC (0.01), 3661-3511 BC (0.56), 3425-3382 BC (0.11)	3765-3723 BC (0.03), 3716-3370 BC (0.92)	3571 BC
41HP159	GX-15878	--	--	-24.1	4490	70	3340-3204 BC (0.39), 3198-3095 BC (0.29)	3367-3007 BC (0.90), 2989-2931 BC (0.05)	3190 BC
41HS24	Beta-92922	2570	50	-29.1	2510	50	776-731 BC (0.16), 691-660 BC (0.12), 651-544 BC (0.41)	796-501 BC (0.90), 495-486 BC (0.01), 463-449 BC (0.01), 442-417 BC (0.02)	634 BC
41HS846	Beta-210250	3560	40	-25.6	3550	40	1950-1876 BC (0.49), 1843-1819 BC (0.11), 1798-1780 BC (0.08)	2016-1997 BC (0.03), 1980-1756 BC (0.92)	1893 BC
41LR152	Beta-153589	--	--	-24.8	2490	40	763-725 BC (0.14), 694-681 BC (0.05), 673-541 BC (0.50)	781-486 BC (0.90), 463-448 BC (0.02), 443-417 BC (0.03)	626 BC
41LR187	Beta-153595	--	--	-25.6	3650	40	2123-2093 BC (0.16), 2042-1954 BC (0.52)	2140-1914 BC (0.95)	2021 BC
41LR297	Beta-237679	2470	50	-24.6	2480	50	760-683 BC (0.23), 670-523 BC (0.45)	772-479 BC (0.85), 470-414 BC (0.11)	614 BC
41NA231	Beta-204779	3100	40	-24.9	3100	40	1426-1370 BC (0.45), 1349-1316 BC (0.24)	1447-1266 BC (0.95)	1375 BC
41NA236	Beta-204781	4290	40	-25.1	4290	40	2927-2879 BC (0.68)	3023-2871 BC (0.94), 2802-2779 BC (0.02)	2907 BC
41NA240	Beta-151100	2720	40	-24.7	2720	40	902-827 BC (0.68)	971-960 BC (0.02), 935-804 BC (0.93)	868 BC
41NA240	Beta-151099	2380	40	-23.8	2400	40	522-401 BC (0.68)	749-687 BC (0.14), 666-643 BC (0.04), 592-577 BC (0.01), 568-393 BC (0.77)	487 BC
41NA264	Beta-151106	3130	80	-27.0	3090	80	1447-1261 BC (0.68)	1523-1122 BC (0.95)	1346 BC
41NA285	Beta-151111	3770	40	-24.2	3780	40	2284-2248 BC (0.19), 2234-2141 BC (0.49)	2343-2121 BC (0.88), 2095-2041 BC (0.08)	2207 BC
41NA285	Beta-203672	2860	40	-25.0	2860	40	1112-1101 BC (0.05), 1087-1064 BC (0.11), 1058-976 BC (0.50), 952-946 BC (0.03)	1191-1177 BC (0.01), 1160-1144 BC (0.02), 1131-914 BC (0.92)	1032 BC
41NA290	Beta-151114	3220	70	-26.8	3190	70	1600-1594 BC (0.01), 1531-1394 BC (0.67)	1630-1305 BC (0.95)	1469 BC
41NA290	Beta-151117	3030	40	-25.5	3020	40	1377-1338 BC (0.18), 1321-1252 BC (0.38), 1242-1213 BC (0.13)	1396-1153 BC (0.92), 1146-1129 BC (0.03)	1283 BC

Table 1. Catalog of ^{14}C dates for the East Texas Archaic period, cont.

<i>Trinomial</i>	<i>Assay No.</i>	<i>Raw Age</i>	\pm	$\delta^{13}\text{C}$ (‰)	<i>Conv ^{14}C Age</i>	\pm	<i>1σ Age Range*</i>	<i>2σ Age Range*</i>	<i>Median</i>
41NA290	Beta-151118	2930	40	-24.1	2940	40	1256-1237 BC (0.08), 1215-1111 BC (0.50), 1103-1081 BC (0.08), 1065-1056 BC (0.03)	1291-1280 BC (0.01), 1270-1014 BC (0.94)	1156 BC
41NA290	Beta-151115	2960	110	-26.9	2930	110	1301-1000 BC (0.68)	1415-895 BC (0.95), 869-853 BC (0.01), 1375-1340 BC (0.05), 1320-1110 BC (0.86), 1103-1073 BC (0.03), 1066-1056 BC (0.01)	1145 BC
41PN175	Beta-163092	2990	40	-25.4	2980	40	1291-1280 BC (0.04), 1270-1129 BC (0.64)	2194-2178 BC (0.01), 2144-1684 BC (0.95)	1217 BC
41RK215	Beta-60090	3560	90	-25.3	3560	90	2025-1860 BC (0.47), 1853-1771 BC (0.22)		1907 BC
41RK215	Beta-60089	3100	90	-26.0	3090	90	1489-1482 BC (0.01), 1455-1257 BC (0.63), 1235-1216 BC (0.04)	1598-1595 BC (0.00), 1531-1109 BC (0.93), 1104-1056 BC (0.02)	1343 BC
41RK222	Beta-72779	3170	120	-24.1	3180	130	1194-1142 BC (0.14), 1133-996 BC (0.53), 985-981 BC (0.01)	1767-1112 BC (0.95), 1101-1085 BC (0.00), 1064-1058 BC (0.00)	1454 BC
41RK222	Beta-72780	2970	60	-29.6	2890	60	748-688 BC (0.17), 665-644 BC (0.06), 589-580 BC (0.02), 556-409 BC (0.43), 746-689 BC (0.18), 664-646 BC (0.05), 552-410 BC (0.45)	1265-914 BC (0.95)	1083 BC
41RK222	Beta-72777	2480	70	-27.6	2440	70	748-688 BC (0.14), 666-644 BC (0.05), 590-579 BC (0.02), 558-389 BC (0.47), 1495-1425 BC (0.68)	766-401 BC (0.95)	571 BC
41RK222	Beta-81715	2460	60	-26.3	2440	60	781-746 BC (0.16), 688-665 BC (0.12), 646-552 BC (0.41)	762-682 BC (0.22), 672-403 BC (0.74)	566 BC
41RK222	Beta-72774	2420	90	-26.7	2390	90		784-356 BC (0.92), 286-234 BC (0.04)	521 BC
41RK468	Beta-239707	3220	40	-27.2	3180	40		1530-1386 BC (0.95)	1456 BC
41RK468	Beta-239709	2560	40	-27.7	2520	40		797-517 BC (0.95)	643 BC
41TT392	Beta-64978	3440	60	-32.2	3320	60	1668-1526 BC (0.68)	1745-1491 BC (0.93), 1480-1456 BC (0.02)	1602 BC
41TT396	Beta-64979	3690	70	-29.4	3620	70	2125-2091 BC (0.10), 2044-1890 BC (0.58)	2198-2165 BC (0.03), 2151-1863 BC (0.85), 1851-1772 BC (0.08)	1988 BC
41TT550	Beta-70992	2620	60	-26.5	2600	60	835-751 BC (0.50), 687-667 BC (0.08), 638-594 BC (0.10)	901-716 BC (0.62), 695-539 BC (0.33)	773 BC
41TT550	Beta-71230	2650	60	-28.5	2590	60	827-750 BC (0.45), 687-666 BC (0.09), 641-592 BC (0.14)	896-537 BC (0.95), 529-537 BC (0.00)	756 BC
41TT550	Beta-70991	2570	60	-27.3	2530	60	794-731 BC (0.22), 691-662 BC (0.11), 650-546 BC (0.36)	805-486 BC (0.91), 463-449 BC (0.01), 442-417 BC (0.03)	643 BC
41TT550	Beta-70990	2470	70	-26.0	2450	70	749-688 BC (0.17), 666-643 BC (0.06), 591-578 BC (0.03), 566-413 BC (0.41)	767-404 BC (0.95)	582 BC

Table 1. Catalog of ^{14}C dates for the East Texas Archaic period, cont.

<i>Trinomial</i>	<i>Assay No.</i>	<i>Raw Age</i>	$\delta^{13}\text{C}$ (‰)	\pm	<i>Conv ^{14}C Age</i>	\pm	<i>1σ Age Range*</i>	<i>2σ Age Range*</i>	<i>Median</i>
41TT852	Beta-300058	2580	-25.0	30	2580	30	802-768 BC (0.68)	814-750 BC (0.80), 688-666 BC (0.10), 640-592 BC (0.06)	782 BC
41TT853	Beta-300108	4240	-24.7	40	4240	40	2907-2866 BC (0.45), 2805-2762 BC (0.24)	2920-2848 BC (0.53), 2814-2738 BC (0.33), 2731-2678 BC (0.10)	2867 BC
41UR77	Beta-166912	7030	-25.4	40	7020	40	5982-5942 BC (0.29), 5928-5877 BC (0.36), 5856-5850 BC (0.03)	5997-5808 BC (0.95)	5913 BC
41UR77	UGA-12975	5220	-25.3	50	5220	50	4220-4213 BC (0.02), 4150-4135 BC (0.05), 4055-3965 BC (0.61)	4230-4197 BC (0.08), 4174-3955 BC (0.88)	4031 BC
41UR77	UGA-12979	4650	-26.1	40	4630	40	3499-3433 BC (0.54), 3379-3361 BC (0.15)	3621-3610 BC (0.01), 3522-3342 BC (0.94)	3454 BC
41UR77	UGA-12977	4400	-27.2	40	4360	40	3016-2916 BC (0.68)	3091-2900 BC (0.95)	2979 BC
41UR77	UGA-12976	4230	-25.6	50	4220	50	2901-2858 BC (0.26), 2810-2752 BC (0.33), 2722-2701 BC (0.10)	2915-2833 BC (0.34), 2820-2660 BC (0.59), 2652-2634 BC (0.02)	2790 BC
41UR77	UGA-12978	4120	-24.4	50	4180	50	2881-2848 BC (0.14), 2813-2739 BC (0.34), 2732-2679 BC (0.20)	2896-2621 BC (0.95)	2764 BC
41UR77	Beta-166911	4130	-24.7	60	4130	60	2866-2805 BC (0.21), 2761-2620 BC (0.48)	2884-2570 BC (0.94), 2515-2501 BC (0.02)	2719 BC
41UR77	UGA-12973	3500	-25.8	40	3490	40	1880-1838 BC (0.25), 1832-1757 BC (0.43)	1919-1734 BC (0.92), 1716-1693 BC (0.04)	1816 BC
41UR77	UGA-12981	3220	-25.8	40	3210	40	1509-1436 BC (0.68)	1606-1574 BC (0.05), 1558-1551 BC (0.01), 1538-1411 BC (0.89)	1478 BC
41UR77	UGA-12982	3180	-27.3	40	3140	40	1491-1480 BC (0.05), 1456-1386 BC (0.63)	1499-1368 BC (0.84), 1359-1315 BC (0.12)	1420 BC
41UR77	UGA-12980	3130	-25.2	40	3130	40	1450-1378 BC (0.60), 1337-1322 BC (0.08)	1496-1311 BC (0.95)	1410 BC
41UR77	UGA-12972	2980	-27.0	40	2950	40	1260-1115 BC (0.68)	1299-1026 BC (0.95)	1171 BC
41UR77	UGA-12985	2850	-24.7	40	2860	40	1112-1101 BC (0.05), 1087-1064 BC (0.11), 1058-976 BC (0.50), 952-946 BC (0.03)	1191-1177 BC (0.01), 1160-1144 BC (0.02), 1131-914 BC (0.92)	1032 BC
41UR77	UGA-12974	2600	-26.4	40	2580	40	809-756 BC (0.58), 685-669 BC (0.10)	821-742 BC (0.64), 690-663 BC (0.12), 647-549 BC (0.20)	773 BC

*All probabilities rounded to the nearest hundredth.